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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,343	02/05/2001	Samuel A. Marouiss	LJL 34601	6560

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EXAMINER
HANDY, DWAYNE K

ART UNIT	PAPER NUMBER
1743	6

DATE MAILED: 04/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MFL

Office Action Summary

Application No.	Applicant(s)
09/777,343	Marquiss et al.
Examiner	**Art Unit**
Dwayne K. Handy	1743

-- Th MAILING DATE of this communication appears on th cover sheet with th correspond nc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Sep 24, 2001*

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-19, 30-39, and 46-48* is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-19, 30-39, and 46-48* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation of a conduit path "remaining open and unconstricted between successive non-contact deposition..." This phrase is unclear to the Examiner. It appears to be a limitation on operation of the device, but no structures are provided which would achieve this function. The Examiner asks what structural or operational elements are required to insure that this process limitation be met? Also, claim 10 recites that the pump is connected to the dispenser assembly "by a tube having a distal end, the tip portion having a flange on a proximal end, the distal end of the tube being held in contact with the flange of the tip portion". It is unclear to the Examiner as to how two ends are structurally related to the flange of the tip portion. Also, the "tip portion" of what? This term has not been defined in claim 10 or claim 1.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 30 and 46-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Koike. Koike (5,660,792) discloses a device for processing samples from test tubes in a sample rack. The device is best shown in Figures 1 and 5 and contains fluid sources (M1-M6), a pump connected to the fluid source (27 A, 27B, 27C), a dispenser assembly (7 or 16) and a conduit path from the pump to dispenser (shown in Figure 5). Koike's device also includes a bank of dispensers (#16 – col. 4, l. 44-45) and a changeable fluid processing network. Koike teaches automated control of syringe pumps in column 7, lines 38-43. Incremental moving of the syringe would involve a stepper motor.

Inventorship

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-3, 8-15, 19, 31, 32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (5,660,792) in view of Zaffaroni (6,121,048). Koike (5,660,792) discloses a device for processing samples from test tubes in a sample rack. The device is best shown in Figures 1 and 5 and contains fluid sources (M1-M6), a pump connected to the fluid source (27 A, 27B, 27C), a dispenser assembly (7 or 16) and a conduit path from the pump to dispenser (shown in Figure 5). Koike's device also includes a bank of dispensers (#16 – col. 4,

l. 44-45) and a changeable fluid processing network. Koike teaches automated control of syringe pumps in column 7, lines 38-43. Koike does not specifically recite a conduit path that remains open between non-contact deposition steps. It would have been obvious to one of ordinary skill in the art, however, to clear the path between successive depositions. One of ordinary skill in the art would recognize that completely clearing the connecting tube between dispensing steps would also prevent contamination of the dispensing elements when switching reagents. Koike also does not recite the limitations of depositing less than 5 microliters, or the tip dimensions recited in the dependent claims.

Zaffaroni teaches a system for synthesizing large numbers of compounds on a rotating substrate. The compounds are delivered to the cells of the array by a micropipette tip attached to a dispenser (Abstract). Zaffaroni discusses the dispensing in columns 13 and 26. In column 13, lines 25-50, Zaffaroni discloses a dispenser that for depositing a drop of approximately 5 nanoliters, the dispenser will be located above the substrate (i.e. non-contact dispensing). In column 26, lines 3-22, Zaffaroni again recites use of a dispenser tip with millimeter dimensions which drops about 5 nanoliters onto a substrate. It would have been obvious to combine the teachings of Zaffaroni with the system of Koike. Zaffaroni provides a tip which dispenses in the nanoliter range. This would be advantageous in high through put systems – many small samples could be placed on one substrate. As to the dimension of the circumferential wall of the orifice, the Examiner contends it would be obvious to one of ordinary skill in the art to make the walls of

a dispensing tip as thin as possible in order to take up as little room as possible in the dispensing manifold.

9. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike in view of Brown et al. (5,853,894). Koike, as described above in paragraph 4 above, teaches every element of claims 33 and 34 except for a PTFE coating. Brown teaches a hydrophobic coating polymer (PTFE – col. 5, l. 46) which is used to coat laboratory elements, thus conferring a low surface energy to the surface. In column 5, Brown recites the many elements which may be coated according to their invention and includes "..vials, flasks, test tubes, pipette tips, microcentrifuge tubes...". It would have been obvious to one of ordinary skill in the art to combine the coating of Brown with the system of Koike. The lower surface energy provided by the coating would help prevent fluids sticking to the tip of the dispensing element.

10. Claims 4-6 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (5,660,792) and Zaffaroni (6,121,048) and further in view of Brown et al. (5,853,894). Koike and Zaffaroni et al., as combined in paragraph 8 above, teach every element of claims 4-6, and 36-39 except for the hydrophobic coating for the tip. Brown teaches a hydrophobic coating polymer (PTFE – col. 5, l. 46) which is used to coat laboratory elements, thus conferring a low surface energy to the surface. In column 5, Brown recites the many elements which may be

coated according to their invention and includes "..vials, flasks, test tubes, pipette tips, microcentrifuge tubes...". It would have been obvious to one of ordinary skill in the art to combine the coating of Brown with the system of Koike. The lower surface energy provided by the coating would help prevent fluids sticking to the tip of the dispensing element.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (5,660,792) in view of Zaffaroni (6,121,048) and further in view of Bass (6,102,885). Koike and Zaffaroni et al., as combined in paragraph 8 above, teach every element of claim 7 except for a sapphire tip on the dispenser. Bass shows a probing device for providing suction or vacuum for the evacuation of fat. The probe tip includes a sapphire tip that provides heat energy to the tip of the probe (col. 13, lines 40-52). It would have been obvious to one of ordinary skill in the art to add the sapphire tip teaching to the combined teachings of Koike and Zaffaroni. The sapphire tip would allow for heating a fluid which is being dispensed from the tip.

12. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (5,660,792) in view of Zaffaroni (6,121,048) and further in view of Adourian et al. (6,207,031). Koike and Zaffaroni et al., as combined in paragraph 8 above, teach every element of claims 16-18 except for 7 except for a arranging the dispensing array to correspond to a microplate of biochip. Adourian et al. recites a workstation for loading a biomolecular analyte

onto a biochip. The system shows samples in a tray (#22) to be loaded to chip module (#32). It would have been obvious to one of ordinary skill in the art to align the dispensing elements of a dispensing array to an array of a biochip or microplate. As shown in Adourian, samples are often transported to and from microplate in automated biological analyzers. It also would have been obvious to one of ordinary skill in the art to use a 96-well microplate as it is a well known microplate format.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Karger et al. (5,872,010) teaches a system for handling fluids to and from a microscale device. Klopotek (6,113,559) discloses another probe system with a sapphire tip for heating.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwayne K. Handy whose telephone number is (703)-305-0211. The examiner can normally be reached on Monday-Friday from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden, can be reached on (703)-308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703)-772-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0661.

Jill Warden
Supervisory Patent Examiner
Technology Center 1700

dkh

March 24, 2002